

**MULTIPHASE MOTORS WITH SINGLE POINT  
SENSING BASED COMMUTATION**

5

**ABSTRACT OF THE DISCLOSURE**

System, method and apparatus for commutating a multiphase motor utilizing a single sensor. Commutation is carried out by employing a sensible system which incorporates phase commutating transition attributes. A motor is started by assigning a starting phase for a given direction of motor direction. An aligning phase initially is energized to orient the rotor so as to provide adequate starting phase start-up torque. Following such alignment and start-up, the motor is operated in response to transitions of the sensible system. In one aspect, a reference phase attribute may be incorporated in the sensible system to provide a mandated reference phase energization when the rotor is oriented for reference phase activation. Further described is a sensible system magnetic region configuration which is combined with a single package Hall effect sensor to provide three-phase unipolar and four-phase commutation with absolute phase defining information.